

AKI AND DIGOXIN INTOXICATION: HEMODIALYSIS TREATMENT WITH SORBENT

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Introduction

Digoxin intoxication is a life-threatening condition that causes possible serious arrhythmias and requires life-saving treatment. The main therapeutic option is a specific antidote that is not always available. In case of AKI with hyperkalemia due to digoxin intoxication, emergency treatment with haemodialysis haemoperfusion using sorbent can be indicated.

Methods

An 84 years old woman joined the ED for severe bradycardia with HR 22-25 bpm, BP 100/50 mmHg. In medical history CAF in DOAC, episodes of acute heart failure, DM II NID, CKD- eGFR -EPI 52 ml/min, lab tests: creatinine 5.3 mg/dl, K⁺ 8.9 mmol/L, digoxin 3.7 ng/ml (n.v. 0.8-2), unbalanced metabolic acidosis and hyperlactacidemia (lactate 10.6 mmol/L), tachypneic, noslopping aedema, anuria diagnosis: AKI in digoxin intoxication, hyperkalemia, hemodynamic instability. Renal ultrasound: kidneys within normal limits in consideration of the clinical presentation, urgent hemodialysis treatment is indicated. Placement of CRRT and Cytosorb, systemic anticoagulation with UFH.

Results

Due to the unavailability of the antidote, hemodialysis treatment with sorbent cartridge was performed. After 4 hours of CRRT reduction in digoxin blood level (2 ng/ml), improvement in kaliemia control (K⁺ 4.8 mEq/L), reduction in hyperlactacidemia (lactate 6.5 mmol/L), BNP drop were observed. During treatment HR 210 bpm occurred, and then adenosine bolus was given with normalization of HR. After 17-hours CRRT treatment, two additional intermittent haemodialysis sessions were required due to the persistence of anuria. Hospitalization was complicated by UTI: urine culture + E. coli. The patient was discharged after 20 days with renal function recovered creatinine 1.4 mg/dl, K⁺ 4.1 mmol/L.

Conclusions

Hemodialysis treatment with sorbent in digoxin toxicity is effective in terms of blood level reduction; length of treatment remains to be debated. We observed an improvement in serum digoxin level after 4 hours and normalization after 17 hours of hemodialysis treatment. The effectiveness of treatment might depend on the initial blood levels of digoxin.

Figure 1: several parameters at admission and after 17 hours

PARAMETERS	AT ADMISSION	AFTER 17 HOURS
Glasgow coma scale (GCS)	13	15
Heart rate (bpm)	29	80
Blood pressure (mmHg)	100/50	116/60
Serum digoxin (ng/ml)	3.7	1.6
eGFR (CKD-EPI ml/min/1.73m ²)	7	21
K ⁺ (mmol/L)	8.9	4.4
Serum lactate (mmol/L)	10.6	1.3
pH	7.37	7.46
Sodium Bicarbonate (mmol/L)	21	25
WBC(mila/microL)	12.3	6.5
CRP (mg/L)	0.34	1.2